GENERAL INDEX.

The most important classified entries will be found under Contributors, Personals, and Reviews. New names and names of new genera, species, and varieties are printed in **bold face** type; synonyms in *italic*.

A

Abbe, Ernst, statue to 457
Absorption of water by leaves 262
Abutilon, arboreum 361; striatum 361; Thomsoni 361
Acacia constricta, absorption of water 278
Acids, excretion by roots 367
Acrolasia 356
Actinokentia 356
Adaptation, endoparasitic 305
Aerotropism 103
Agaricus campestris 350
Agropyron caninum, nodes of 4
Alcicornium 150
Algae, brown pigment of 79; iron 225; of northern seas 367
Allionia 151
Allium Cepa 370
Alternation of generations 222; in Phaeophyceae 364
Alyssum maritimum 327
Amanita **bisporigera** 348; verna 348
Amelanchier 150, 356
American Mycological Society 160
Amphispores in Uredineae 157
Amphivasal bundles 8
Anatomy, as a test of species 362; of Andromeda polifolia 19; of Claytonia 306; ecological, of bog plants 17
Andropogon, argenteum, cambium in 11; furcatus, amphivasal bundles 10; scoparius, amphivasal bundles 10
Annales de Biologie Lacustre, a new journal 457
Antennaria 356; neodioica 149
Apocynum 356
Apothecia of lichens 306
Aphyllon 356
Apple, blight canker 366; rot 223; and pear rot 223
Araucarineae 221
Arenaria verna 356
Armour, Helen M., on Chloranthus 368
Artemisia 150; variabilis 327
Arthur, J. C., 155, 217, 301, 356; personal 160, 307; on amphispores 157
Arundo Donax, cambium in 12; nodes of 3, 5
Ascomycetes, nuclear divison in 305
Ascophanus, streaming in 217
Asparagus rust 304, 365
Aspergillus niger 90
Asplenium 356
Association internationale des botanistes 227
Aster 150
Astragalus 356
Atelophragma 356
Atkinson, George F., personal 307
Avebury, Lord, "Life history of British flowering plants" 451
Avena, barbata 24; sativa 4; sterilis, 12

B

Bacterial diseases 214
Bailey, W. Whitman, personal 307
Balanopsidaceae 356
Baldwiniella 356
Bambou, Le, a new journal 308
Bargagli-Petrucci, G., on nucleoli in mitosis 369
Bark of Sassafras 434
Barnes, C. R., 147, 148, 149, 153, 157, 215, 220, 221, 222, 224, 225, 300, 305, 306, 368, 370, 448, 449, 450, 456
Basidium of Amanita bisporigera 348
Bast in Sassafras 439
Bateson, E., on heterostylism 304
Baur, on chlorosis 361
Beauvard, on Burmannia 149
Bell, J. M., on soil waters 305
Bennettites 79
Berberis 149
Bergen, J. Y., 327, 362
Bernard, C., on photosynthesis 158
Bessey, Ernst A., personal 80
Betula, mycorhiza in 32;
Biological Laboratory, Cold Spring Harbor 372; Ohio State University 227; University of Minnesota 227; University of Washington 372; Woods Hole 227
Biondia 150

Black rot of cabbage 306
Blakeslee, A. F., personal 80, 371
Blackman F. F., on Optima and limiting factors 456; on photosynthesis 215
Blight canker 366
Blinn, P. K., on rust-resistant cantaloup 226
Blytt, A., "Haandbog i Norges Flora" 451
Bogs and bog flora 17
Boisduvalia 356
Boletus 150
Börgesen, "Algal vegetation of Faeröese coasts" 71
Borzi, A., on Zoddaea 357
Bosleria 150
Botanical Symposium, third annual meeting 457
Botrytis vulgaris 88
Boudier, Émile, personal 159
Boveri on Euglena 230
Brainerd, E., on violets 356
Brandenburg, cryptogamic flora of 300
Breazeale, J. F., 54
Brefeld, Oskar, personal 80; work of 81
Briquet, J., personal 457
Britton, N. L., personal 372
Briza maxima, cambium in 12
Brocq-Rousseu, on mustiness 306
Bromus inermis, cambium in 12
Brown pigment of algae 79
Buds and twigs in winter 373
Buller, A. H. R., on enzymes of Polyporus 456
Bulletins of Kew Gardens 457
Burgess, E. S., "Biotian Asters" 354
Burmannia 149
Burns and Hedden, on regeneration of hypocotyl 452
Büsgen, M., on chemotropism 82
Butler, O., on grape diseases 367

C

Cabbage, black rot of 306
Calamagrostis Canadensis, amphivasal bundles of 9; cambium in 12
California, Academy of Science, destruction of building 371; new species of plants 283
Cambium in grasses 11
Cameron F. K., on soil waters 305
Campanula, exigua 325; trachelium 359
Canker blight 366
Cannon, W. A., on measuring transpiration 158
Cantaloup, a rust-resistant 226
Cardot, J., work of 149, 150, 355
Carduus 151
Carey, Henry B., personal 227
Castilleia 356; **Wightii** 322
Caulerpa prolifera, Janse on 455
Cavara, F., personal 371, 458
Cedroxylon 151
Cell division in Empusa 229, 243
Celtis pallida, absorption of water 267
Ceramium, Tobler on 455
Ceratelium 356
Cercospora apii 86
Chamaechaenactis 356
Chamaedaphne calyculata, ecological anatomy 19
Chamberlain, C. J., 76, 148, 221, 223, 225, 226, 306, 364, 368, 369; on alteration of generations 222; "Methods in plant histology" 74
Chemotaxis of spermatozoids 76, 226
Chemotropism of fungi 81
Chiogenes hispidula, ecological anatomy 19; mycorhiza 32
Chloranthus, morphology of 368
Chloroform, a stimulant 158
Chlorophyceae 357
Chloroplasts of sun and shade plants 219
Chlorosis 361
Christ, H., on ferns of Costa Rica 355
Christensen, C., "Index Filicum" 148, 355
Chromatophores, nature of 220; in Zygnema 48
Chromosome reduction 158; aberrant 225; in Zygnema 46
Chrysler, M. A., 1, 155, 222, 455
Chrysopogon avenaceus, amphivasal bundles 10
Chrysopsis, **arenaria** 312; Breweri 292; **gracilis** 291
Cladocephalus 150
Clark, J. F., on chemotropism 84
Clarke, C. B., on Philippine plants 353
Clavaria 150
Claytonia, anatomy of 306
Cleomella 150
Cnemidophacos 356
Cobb, N. A., on sugar cane 365
Coilochilus 356
Coix **dactyloides** 295; lachryma, amphivasal bundles 9, 10; cambium in 12
Cold Spring Harbor biological laboratory 372
Collinsia **Hernandezii** 310
Conceptacle of Sargassum 167
Conimitella 353
Conjugation, yeasts 157
Connecticut, fungi of 215
Contributors: Arthur, J. C., 155, 217, 301; Barnes, C. R., 147, 148, 149, 153, 157, 215, 220, 221, 222, 224, 225, 300, 305, 306, 368, 370, 448, 449, 450, 456;

Bergen, J. Y., 327, 362; Breazeale, J. F., 54; Chamberlain, C. J., 76, 148, 221, 223, 225, 226, 306, 364, 368, 369; Chrysler, M. A., 1, 155, 222, 455; Coulter, J. M., 353, 354, 355, 362, 368, 451, 456; Cowles, H. C., 77, 78; Davis, B. M., 71, 76, 79, 146, 157, 305, 306, 353, 367; Eastwood, A., 283; Elmer, A. D. E., 309; Farmer, J. B., 67; Fulton, H. R., 81; Ganong, W. F., 209; Harding, H. A., 214; Hasselbring, H., 72, 75, 77, 152, 156, 157, 361, 366; Hill, E. J., 447; Hitchcock, A. S., 64, 298; House, H. D., 334; Jeffrey, E. C., 151, 218; Land, W. J. G., 74, 79, 219; Lewis, C. E., 109, 348; Livingston, B. E., 139; Lyon, F., 156; MacCallum, W. B., 73, 452; Marsh, C. D., 360; Merriman, M. L., 43; Moore, A. C., 69; Newcombe, F. C., 76; Olive, E. W., 192, 229; Pond, R. H., 156, 217, 219, 220, 221, 226, 359, 367; Schaffner, J. H., 183; Shear, C. L., 160; Shull, G. H., 301, 302, 303, 357, 358, 363; Simons, E. B., 161; Spalding, V. M., 262; Stevens, F. L., 216, 369; Thiessen, R., 154; Transeau, E. N., 17, 144, 222, 224; True, R. H., 209; Weiss, H. F., 434; Wiegand, K. M., 373; Wilcox, E. M., 223, 226, 304, 364, 365, 366, 367; Yamanouchi, S., 425
Conzatti, C., "Los géneros vegetales mexicanos" 147
Copeland, E. B., "Polypodiaceae and edible fungi of the Philippines" 147
Coreosma 357
Corn, an ear of 301
Cornella 356
Correns, C., on gynodioecism 302; on laws of inheritance 303
Cortex in Sassafras 437
Cortinarius 150
Coulter, J. M., 353, 354, 355, 362, 368, 451, 456; personal 371
Covillea tridentata, absorption of water 273
Cowles, H. C., 77, 78
Crataegus 151; monogyna 358
Crone, von der, death of 372
Croomia pauciflora, amphivasal bundles 8
Crossotheca 219
Cruciferae, idioblasts of 221; nectaries of 368
Crunocallis 356
Cryptogamic flora of Brandenburg 300
Cryptostoma of Sargassum 171
Ctenophyllum 356
Cucumis sativus, Tillman on morphology 456
Cupressineae 152
Cupressinoxylon 151
Cupressus Goveniana 326
Cushman, J. A., on desmids 356
Cycadoidea 151
Cyclamen, Hildebrand on regeneration 453
Cyclopedia, botanical 76
Cynoglossum, boreale 365; Virginicum 356
Cystolejeunea 356

D

Dacryomyces, chrysocomus 349; deliquescens 348
Dadoxylon 151
Dammer, U., work of 356, 357
Danish Arctic biological station 228
Darbishire, A. D., on Mendelian law 303
Darwin, F., personal 159
Davis, B. M., 71, 76, 79, 146, 157, 305, 306, 353, 367
DeBary, A., work of 81
Delphinium 150, 356
Denmark, lakes 360; shore formations 78
Deschampsia 150
Desert shrubs, biological relations 262
Desmids 356, 360
Detmers, Freda, personal 372
Deuterghem, Osw. de Kerchove de, personal 307
Diastase 158
Diatoms 360; movement 306
Dictyota, periodicity of sex organs 79
Didymogenes 150
Diels, L., on Chinese flora 150
Dietel, P., on Japanese Uredineae 149
Diholcos 356
Dimorphella 150
Diplacus **calycinus** 287
Disease, apple rot 223; asparagus 365; bacterial 214; blight canker of apple trees 366; chlorosis 361; Freeman on 72; grape 367; pear rot 223; potato 364; sugar cane 365
Domin, work of 149
Ducts, intercellular 306
Duggar, B. M., personal 307
Durand, Th., personal 307

E

Earle, F. S., personal 160
Eastwood, Alice, 283; personal 371
Eatonia 150
Echinophora spinosa 327
Ecological survey 222
Electricity and photosynthesis 225
Ellis, J. B., death of 307
Elmer, A. D. E., 309
Elmera 353
Elymus 151; Americanus, nodes of 4
Embryology of Riccia 109

Embryo of Symplocarpus 369
Empusa, Aphidis 196; Culicis 203; morphology and development of 192; muscae 192; nuclear and cell division 229; **sciarae** 196; sphaerosperma 193
Engler, A., on Araceae 149; "Natürlichen Pflanzenfamilien" 355; "Pflanzenreich" 149, 355
Entomophthora Delpiniana 202
Entomophthoreae, cytological studies of 192, 229
Enzymes of Polyporus, Buller on 456
Epidermal gaps 370
Epidermis of bark in Sassafras 435
Equisetum arvense 369; chemotaxis of sperms 226
Erianthus Ravennae, cambium in 12
Erigeron **Copelandi** 291; **decumbens** 290; miser 291; pygmaeus 291
Eriksson, Jakob, on grain rust 155, 301
Eriogonum 150, 356
Eriophorum Virginicum, ecological anatomy 18
Eriophyllum **Greenei** 313
Ernst, A., on greening of seeds 305
Erocallis 356
Errera, Léo, personal 307; biography of 372; on glycogen 370; on inhibitory action 221; work of 85
Eryngium maritimum 327
Euglena, Boveri on 230; Keuten on 230
Eunanus Androsaceus 324
Euphorbia, Paralias 327; terracina 327
Eustace, H. J., on spraying potatoes 364
Evans, A. W., on Hepaticae of Puerto Rico 356
Evergreens, transpiration of 362
Ewart, A. J., Pfeffer's "Physiology" 450

F

Falck, R., on zygote formation 85
Farlow, W. G., "Index of fungi" 75; personal 160
Farmer, J. B. 67
Faurie, Abbé 149
Ferguson, M. C., on germination of spores 100
Fernald, M. L., 149, 356
Ferns 355
Fertilization in Polysiphonia violacea 428
Festuca 150, 354; arundinacea, amphivasal bundles 9
Ficus erecta, transpiration of 363
Figdor on regeneration 453
Fink, Bruce, personal 160, 372
Fischer, Walter, personal 80
Fleischer, Max, on mosses 150, 356
Fliche, P., (and Zeiller) on fossil gymnosperms 151
Flora and Sylva 372
Foods, vegetable 299
Ford, Sibille O., on Araucarineae 221
Fouquieria splendens, absorption of water 279
Fraysse, A., on haustoria of Osyris 370
Freeman, E. M., personal 160; "Minnesota plant diseases" 72
Freer, Paul C., personal 228
Freezing of buds and twigs 384
Fritillaria **succulenta** 311
Früh and Schröter, "Swiss moors" 144
Fulton, H. R., 81
Fungi, chemotropism of 81; of Connecticut 215; edible 147; index of 75; parasitic 77
Fusarium Solani 77

G

Gager, C. S., personal 372
Gaidukov, N., on iron algae 225
Gallaud on mycorhiza 153
Ganong, W. F., 209
Gaspar, J., on American vines 153
Germination, of carpospores of Polysiphonia 426; in myxomycetes 366; of tetraspores of Polysiphonia 426
Geum 356
Gibson, R. J. H., on scales of aquatic monocotyledons, 156
Giglio-Tos, E., "Les problèmes de la vie" 450
Gilg, E., "Pharmacognosie" 355
Gilia 150, 356
Giraldiella 150
Glaucium flavum 327
Glaux 356
Gleason, H. A., (Kellerman and Schaffner) "Spring flora" 451
Gloeosporium nervisequum 78
Glycogen and paraglycogen 370
Gnomonia Veneta 78
Godetia **lanata** 317
Gonatostylis 356
Gothan, W., on fossil gymnosperms 151
Graft-hybrids 358
Grape diseases 367
Grasses, of Iowa 215; nodes of 1; North American 294
Greene, E. L., 356
Greenman, Jesse M., personal 307
Gregory, R. P., on heterostylism 304
Growth of scaly buds 376
Guilliermond, M. A., on conjugation of yeasts 157; on nuclear division 305
Guttenberg, H. R. von, on photic sense organs 220
Gymnosperms, fossil 151
Gynodioecism 302

H

Hackel, E., on Philippine grasses 354
Harding, H. A., 214; on black rot 306; on root tubercle cultures 216
Harper, R. A., "Reproduction in mildews" 146
Harshberger, John W., personal 80, 227
Hartigiella 150
Hasselbring, H., 72, 75, 77, 152, 156, 157, 361, 366
Haustoria of Osyris 370
Heller, A. A., 150, 356
Henderson, L. F., on potato scab 304
Hennings, P., personal 300
Hepaticae 356; of France 148
Heredity 357
Herpetineuron 149
Herre, A. W. C. R., "Lichens of Santa Cruz" 354
Hesperantha 149
Hesperastragalus 356
Hesperochloa 354
Heterostyly in Primula 304
Hieronymus 150
Hildebrand on regeneration 453
Hill, E. J., 447
Histology, methods in plant 74
Hitchcock, A. S., 64, 298
Höhnel, F. von, on fungi 356
Holacantha Emoryi, absorption of water 278
Holck, A., personal 228
Hollick, Arthur, personal 372
Holm, Theo., on anatomy of Claytonia 306; on Croomia 8
Homaliodendron 356
Horkelia, Bolanderi **marinensis** 321; campestris 286; **mollis** 286
House, H. D., 334
Howe, M. A., 150; personal 372
Huron river valley, bogs of 17
Hybrids, graft 358
Hypocotyl, Burns and Hedden on regeneration of 452

I

Ice in buds 384
Idioblasts, of Cruciferae 221
Index Filicum 148, 355
Inheritance, laws of 303
Inhibitory action 221
Integument of Cycads 226
Inula viscosa 327
Iowa, grasses of 215
Istvánffi, on diseases of vines 153; personal 80

J

Jackson, B. D., "Glossary of botanic terms" 448
Jackson, D. D., on movement of diatoms 306
Jahn, E., on myxomycetes 366
Janczewski, E., 357
Janse on Caulerpa prolifera 455
Japanese vegetation 76
Jeffrey, E. C., 151, 218
Jenčic, on pollen 301
Joffrin, H., on intercellular ducts 306
Johnson, D. S., personal 372
Jonesiella 356
Journals: Annales de Biologie Lacustre 457; Flora and Sylva 372; Le Bambou 308; Philippine Journal of Science 228
Jumelle, H., on tuberization 77

K

Kellerman, W. A., personal 458; (Gleason and Schaffner) "Spring flora" 451
Kelps, Setchell on regeneration of 454
Keuten on Euglena 230
Kew Gardens, visitors 371; bulletins 457
Kidston, Robert, on Sigillaria 155; on Sphenopteris 219
Kihlman, O., on chemotropism 81
Kinetostigma 357
Klebahn, H., on parasitic fungi 77
Klebs, G., work of 85; on variation 359
Kleeman, A., on diastase 158
Kny, L., work of 85
Koeleria 149
Körnicke, M., on chromosome reduction 158; on germination and radium emanations 217
Kunze, Gustav, on excretion of acids by roots 367
Kupffer, K. R., on species 301

L

Laburnum Adami 359
Lacouture, C., "Hepaticae of France" 148
Lactarius 150
Lakes of Scotland and Denmark 360
Land, W. J. G., 74, 79, 219
Larix laricina, ecological anatomy 20; mycorhiza in 32
Lasthenia 356
Latham, M. E., on chloroform stimulation 158
Leaves, absorption of water 262
Ledum groenlandicum, ecological anatomy 20; mycorhiza in 32
Leersia oryzoides, amphivasal bundles 9; cambium in 12; nodes of 4
Leiblinger, G., on epidermal gaps 370
Lenticels in Sassafras 442
Leptodontia 355
Leptosyne **Hamiltonii** 323
Lewis, C. E., 109, 348

Lewis, F. J., on Scotch moors 224
Lewton-Brain, L., on disease of sugar cane 365
Lichens 149; apothecia of 306; of Santa Cruz 354
Lidforss, B., on chemotaxis of sperms 226
Light relations at high altitudes 156
Lignier, O., on Bennettites 79
Lilium tigrinum, chromosome reduction in 183
Linanthus 150
Lindau, G., personal 300
Lindlinger, L., on roots of monocotyledons 455
Lindner, P., personal 300
Lithophragma 150, 156
Littoral spermatophytes of Naples region 327
Livingston, B. E., 139; personal 159
Lloyd, F. E., 356; personal 159
Lock, R. H., on plant breeding 363
Loeb, J., "Dynamics of living matter" 449
Lolium, italicum, cambium in 12; perenne, cambium in 12; nodes of 2
Lomatium 356
Longyear, B. O., on apple rot 223
Lotsy, J. P., personal 228
Lotus ornithopodioides 327
Lubimenko, M. W., on chloroplasts 219
Lulham, R. B. J., on vascular system of Matonia 218
Lupinus 356; polyphyllus 325
Lycopodium 356
Lycium Berlandieri, absorption of water 275
Lyon, Florence, 156
Lyon, H. L., on alternation of generations 222

M

MacAlpine, on Uredineae 150
MacCallum, W. B., 73, 452
MacCaskey, H. D., personal 228
Macchiati, L., on photosynthesis extra vitam 456
MacDougal, D. T., personal 159, 372; on heredity 357
MacMillan, C., personal 227
Macrae, Lilian J., personal 227
Macrosporium cucumerinum 226
Maiden, J. H., "Eucalyptus" 149
Maize, nitrogen for 370
Malacolepis 356
Marine Biological Laboratory, Cold Spring Harbor 372; Woods Hole 227; University of Minnesota 227; University of Washington 372
Marsh, C. D., 360
Massee, G., work of 84
Matonia pectinata, vascular system of 218
Matthaei, G. L. C., on photosynthesis 215
Matthiola sinuata 327
Maxon, W. R., personal 371
Medicago, litoralis 327; marina 327
Medullary rays of bark in Sassafras 438
Mereschkowsky, C., on chromatophores 220
Meria 150
Merrill, E. D., on Philippine plants 353
Merriman, Mabel L. 43
Mespilus germanica 358
Mexico, genera of 147
Meyer, D. H., 149
Microphacos 356
Microsporangia of Sphenopteris 219
Microsporocytes of Lilium 183
Miehe, H., on polarity of isolated cells 454
Mildews, reproduction of 146
Millspaugh, C. F., personal 371; "Praenunciae Bahamenses" 354
Minnesota Seaside Station 227
Miscanthus sinensis, cambium in 12
Missouri Botanical Garden, annual report 160
Mitosis, nucleoli in 369
Miyoshi, M., on Japanese vegetation 76; work of 83
Moeller, J., "Vegetable foods" 299
Molisch, H., on brown pigment 79; work of 85
Monardella **franciscana** 320
Monocotyledons, aquatic 156; roots of, Lindlinger on 455
Montemartini, L., on proteid-formation 225
Montia 150, 356
Montgomery, E. G., on an ear of corn 303
Montgomery, T. H., on aberrant chromosomes 225
Moore, A. C., 69; on sporogenesis 67
Moore, A. H., "Plants of Bermuda" 355
Moore, G. T., personal 227
Moors, Scotch 224; Swiss 144
Mosses 149, 355, 356; germination of spores 370; sporophyte of 158
Mott, W. W., on teratology in Salix 368
Movement of diatoms 306
Mucor, mucedo 88; streaming of protoplasm 217
Müllerobryum 150
Muhlenbergia debilis 326
Murrill, W. A., personal 372
Mustiness 306
Mutation 357
Mycoplasm and grain rust 155
Mycorhiza 32; endotrophic 153
Mycospherella Ulmi 78
Myxomycetes, germination in 366

N

Naiocrene 356
Naples region, littoral spermatophytes 327
Narcissus Tazetta 327
Nash, G. V., personal 372
Navarretia 356; **Abramsi** 314
Neckeraceae 357
Nectaries of Cruciferae 368
Neger, F., personal 300
Nelson, A., on Nevada plants 150
Němec, B., on regeneration 73
Nemophila **Fremontii** 319
Neodutzia 353
Neottia nidus-avis, brown pigment 79
Nephrocarpus 356
Newcombe, F. C., 76
Niklewski, B., on the reserve food of trees 157
Nitrogen for maize 370
Noll, F., on graft-hybrids 358
Nordhausen, M., on chemotropism 84
Nuclear division, Ascomycetes 305; Empusa 233; Zygnema 43
Nucleoli in mitosis 369
Nucleus, division of in basidium 348; and secretion 306

O

Oaks, distribution and habits of some common 445
Ocrearia 353
Ohio State University Lake Laboratory 227
Olive, E. W., 192, 229
Olsson-Seffer, P., personal 227
Oltmanns, F., "Morphologie und Biologie der Algen" 353
Oocyst of Sargassum 175
Oogenesis in Polysiphonia violacea 428
Optima and limiting factors, Blackman on 456
Orchidaceae 356
Oreochrysum 356
Orthocarpus 356; **Copelandi** 288; imbricatus 288; **longispicatus** 317
Osmotropism 104
Osterhout, W. J. V., on Colorado plants 151
Osyris, haustoria of 370
Oven, E. von, on tomato rot 156
Oxycoccus macrocarpus, ecological anatomy 18; mycorhiza in 32

P

Pachyplectron 356
Paddock, W., on apple rot 223
Palibrin on Chinese flora 355
Palladin, W., on respiration 223
Pallavicinia, sporogenesis in 67
Palms 357
Pammel, L. H., "Grasses of Iowa" 215
Panicularia, Americana, amphivasal bundles 9, cambium 12, nodes 3; nervata, amphivasal bundles 9
Panicum 64; Chamaelonche 64; Crus-galli, cambium in 12; demissum 64; Enslini 64; floridanum 65; jejeunum 65; lanceariun 65; leucoblepharis 66; sanguinale, amphivasal bundles 9, cambium in 12; unciphyllum 66
Pantanelli, E., personal 159; on mechanics of secretion 222
Papers, limitation of length 307
Paraglycogen and glycogen 370
Parkinsonia Torreyana, absorption of water 276
Pascher, A., on sexual reproduction of Stigeoclonium 154
Paspalum stoloniferum, amphivasal bundles 9
Paullinia 149
Pear rot 223
Pearson, H. H. W., on Welwitschia 226
Peck, C. H., on fungi 150
Pedicularis **Dudleyi** 316
Penicillium glaucum 86
Pennisetum longistylum, cambium in 12
Pentachaeta **laxa** 318
Pentstemon 356
Personal: Abbe, E., 457; Arthur, J. C. 160, 307; Atkinson, G. F., 307; Bailey, W. W., 307; Bessey, E. A., 80; Blakeslee, A. F., 80, 371; Boudier, E., 159; Brefeld, O., 80; Briquet, J., 457; Britton, N. L., 372; Carey, H. B., 227; Cavara, F., 371, 458; Coulter, J. M., 371; Crone, von der, 372; Darwin, F., 159; Davis, B. M., 457; Detmers, Freda, 372; Deuterghem, Osw. de Kerchove de, 307; Duggar, B. M., 307; Durand, T., 307; Earle, F. S., 160; Eastwood, Alice, 371; Errera, Léo, 307; Farlow, W. G., 160; Fink, Bruce, 160, 372; Fischer, W., 80; Freeman, E. M., 160; Freer, P. C., 228; Greenman, J. M., 307; Gager, C. S., 372; Harshberger, J. W., 80, 227; Hennings, P., 300; Holck, A., 228; Hollick, A., 372; Howe, M. A., 372; Istvánffi, G. de, 80; Johnson, D. S., 372; Kellerman, W. A., 458; Lindner, P., 300; Lindau, G., 300; Livingston, B. E., 159; Lotsy, J. P., 228; Lloyd, F. E., 159; MacCaskey, H. D., 228; MacDougal, D. T., 159, 372; MacMillan, C., 227; Macrae, L. J., 227; Maxon, W. R., 371; Millspaugh, C. F., 371; Moore, G. T., 227; Murrill, W. A., 372; Nash, G. V., 372; Neger, F., 300;

Olsson-Seffer, P., 227; Pantanelli, E., 159; Porsild, M. P., 228; Prain, D., 159; Rendle, A. B., 371; Richter, A., 159; Rolfs, P. H., 80, 160; Rose, J. N., 159; Rosén, F., 371; Rosz 371; Rusby, H. H., 372; Schneider, A., 227; Shear, C. L., 160; Shreve, F., 372; Spaulding, P., 160; Stickney, M. E., 227; Strasburger, E., 80; Strong, R. P., 228; Thiselton-Dyer, W., 159; Tracy, S. M., 160; Transeau, E. N., 372; Underwood, L. M., 372; Vries, Hugo de, 159, 371, 372; Ward, L. F., 371; Wiesner, J., 457; Wildman, E. de, 307; Williams, R. S., 159; Wolfe, J. J., 227
Pethybridge, G. H., on ecological survey 222
Penzigiella 356
Pfeffer, W., work of 81; "Physiology" 450
Phacelia **acanthominthoides** 309; **flaccida** 323
Phacopsis 356
Phaeophyceae, alternation of generations 364
Phalaris, arundinacea, amphivasal bundles 9, nodes of 5; nervata, nodes of 4
Phelloderm in Sassafras 443
Phellogen in Sassafras 441
Philippine, Journal of Science 228; plants 353
Phleospora Ulmi 77
Phleum pratense, amphivasal bundles 10
Photic sense organs 220
Pholiota 150
Photosynthesis, and electricity, Pollacci on 225; extra vitam, Bernard on 157, Macchiati on 456
Photosynthometer 209
Phycomyces nitens, streaming in 217
Physiology, appliances for 209
Picea Mariana, ecological anatomy 20; mycorhiza in 32
Piceoxylon 152
Pinus, fossil 151; Strobus, ecological anatomy 20; mycorhiza 32
Pinusoxylon 152
Pityoxylon 152
Piper, C. V., "North American species of Festuca" 354
Pizzoni, P., on haustoria of Osyris 370
Plagiochila 149
Plankton 150, 360
Plantago Coronopus 327
Plant-breeding in tropics 363
Platyschkuhria 356
Poa 150
Podocarpeae 152
Polarity of isolated cells, Miehe on 454
Polemonium 150
Pollacci, G., on photosynthesis and electricity 225; on preserving plants 368
Polygonum, 356; maritimum 327
Polypodiaceae 147
Polysiphonia, Tobler on 455; violacea, life history of 425
Pond, R. H. 156, 217, 219, 220, 221, 226, 359, 367
Populus tremuloides, mycorhiza in 32
Porsild, M. P., personal 228
Potato, resistant 369; scab 304; spraying 364
Praeger, R. L., on ecological survey 222
Prain, D., personal 159
Prenanthella 356
Preserving plants 368
Primula, heterostyly in 304
Prosopis velutina, absorption of water 277
Proteids, formation of 225
Protoplasm, streaming in Mucors 217
Prucha, N. J., on root tubercle cultures 216
Psilocarphus **tenuis** 292
Pterobryaceae 150
Pteroxygonum 150
Puglisi, M., on transpiration of evergreens 362
Pinnatella 356
Pyrenoids in Zygnema 44
Pyrola 356

Q

Quercus spp., distribution and habits of 445

R

Radium, and germination 217
Radlkofer, work of 149
Ranunculus 150, 151, 356
Raphiolepis japonica, transpiration of 363
Rectolejeunea 356
Reduction of chromosomes 158; in Lilium 183
Reduction division 223
Regeneration 73; recent papers on 452
Reinhardt, M. O., on chemotropism 82
Renauld, F., on Musci exotici 150
Rendle, A. B., personal 371
Respiration 223
Reviews: Avebury's "Life history of British flowering plants" 451; Blytt's "Haandbog i Norges Flora" 451; Börgesen's "Algal vegetation of Faeröese coasts" 71; Burgess's "Biotian Asters" 354; Chamberlain's "Methods in plant histology" 74; Christensen's "Index Filicum" 148, 355; Conzatti's "Los géneros vegetales mexicanos" 147; Copeland's "Polypodiaceae and edible fungi" 147; Engler's "Natürlichen

Pflanzenfamilien"355, "Pflanzenreich" 149, 355; Ewart's Pfeffer's "Physiology" 450; Farlow's "Bibliographical index of N. A. fungi" 75; Freeman's "Minnesota plant diseases" 72; Früh and Schröter's "Moore der Schweiz" 144; Giglio-Tos's "Les problèmes de la vie" 450; Gilg's "Pharmacognosie" 355; Gleason's "Spring flora" 451; Harper's "Sexual reproduction in mildews" 146; Herre's "Lichens of Santa Cruz" 354; Jackson's "Glossary of botanic terms" 448; Kellerman's "Spring flora" 451; Lacouture's "Hepatiques de la France" 148; Loeb's Dynamics of living matter" 449; Maiden's "Eucalyptus" 149; Millspaugh's "Praenunciae Bahamenses" 354; Moeller's "Mikroskopie der Nährungs-und Genussmittel" 299; Moore's "Plants of Bermuda" 355; Němec's "Studien über die Regeneration" 73; Oltmann's "Morphologie und Biologie der Algen" 353; Pammel's "Grasses of Iowa" 215; Piper's "Festuca" 354; Schaffner's "Spring flora" 451; Simons's France's "Germs of mind in plants" 148; Smith's "Bacteria in relation to plant disease" 214; West's "Monograph of British Desmidiaceae" 452; White's "Fungi of Connecticut" 215; Winton's "Vegetable foods" 300; Wittrock's "Catalogus illustratus iconothecae botanicae" 452; Wulff's "Observations faites au Spitzbergen" 146
Rhamnus 150
Ribes 150, 356, 357; **Stanfordii** 315
Ribesia 357
Riccia, biology of 110; Bischoffii 117; bulbosa 177; crystallina 116; development 109; embryology 117; fluitans 116; glauca 116; hirta 116; lutescens 115; *lutescens* 117; minima 117; natans 117; sexual organs 118; spermatogenesis 125; sporogenesis 121; sporophyte 120; *velutina* 117
Ricciocarpus *natans* 117
Richter, A., personal 159
Ridley, H. N., on Philippine plants 354
Rolfs, P. H., personal 80, 160
Roots, excretion of acids 367; of monocotyledons, Lindlinger on 455; relation of growth to tops in wheat 139; tubercle cultures 216
Rose, J. N., personal 159
Rosén, F., personal 371
Rosendahl, C. O., on embryo of Symplocarpus 369
Rosz, personal 371
Rot, tomato 156
Rumex 356
Rusby, H. H., personal 372
Rust, asparagus 304, 365; Eriksson on 155; non-infection by 305; propagation of 301; resistant cantaloup 226
Rydberg, P. A., work of 150, 356

S

Salix 356; Babylonica 368; Breweri 325; lasiandra 368; sericea, ecological anatomy 20; teratology 368
Salmon, E. S., on endoparasitic adaptation 305; on non-infection by rusts 305
Salts, migration of 224
Sanicula 356; laciniata 312; **serpentina** 312
Sargassum filipendula, morphological study of 161
Sargent, C. S., on Crataegus 151
Sarracenia purpurea, ecological anatomy 18
Sarton, A., on anatomy and affinity 224; on experimental anatomy 362
Sassafras bark 434
Scab, potato 304
Scales, winter function of bud 395
Schaffner, J. H., 183; on reduction division 223; "Spring flora" 451
Schaudinn on Coccidium 230
Schlechter, R., on flora of New Caledonia 356
Schmidle, work of 150
Schneider, A., 149; personal 227
Schneider, C. K., "Botanical cyclopedia" 76
Schröter, A., on streaming in Mucor 217
Schweidler, J. H., on idioblasts 221
Sciadopitys 152
Scolopendrium, Figdor on regeneration of 453
Scorzonella 356
Scotch moors 224
Scotland, lakes of 360
Secretion, mechanics of 222; and nucleus 306
Seedlings, growth of 54
Selaginella 356
Sempervivum Funkii 359
Senecio 151, 356; **Millikeni** 293; triangularis 293; vulgaris 327
Sequoia, fossil 151
Serjania 149
Setchell, W. A., on regeneration in kelps 454
Seward, A. C., on Araucarineae 221
Shear, C. L., 160 ; personal 160
Shibata, K., on chemotaxis of sperms 76
Shreve, F., personal 372
Shull, G. H., 301, 302, 303, 357, 358, 363
Sigillarian stems 155

Silene **deflexa** 284; grandis 286; Grayi 285; **lacustris** 284; Lemmoni 284 **pacifica** 285; Suksdorfii 285; Watsoni 285
Simmons, H. G., on algae of northern seas 367
Simons, A. M., France's "Germs of mind in plants" 148
Simons, Etoile B. 161
Sirrine, F. A., on spraying potatoes 364
Small, J. K., work of 356
Smith, E. F., "Bacterial diseases" 214
Smith, R. E., on asparagus rust 304, 365
Smoke, injury by 152
Soave, M., on nitrogen for maize 370
Soil waters 305
Solanum 356; Commersoni 77; tuberosum 77
Sorauer, P., on injury by smoke 152
Sorghum halepense, amphivasal bundles 9
Spalding, V. M., 262
Spaulding, P., personal 160
Species, definition of 301
Spermatocyst of Sargassum 174
Spermatogenesis in Polysiphonia violacea 427
Spermatozoids, chemotaxis of 76, 226
Sphaeralcea 356
Sphaeropsis malorum 86
Sphaerostigma 150
Sphenopteris, microsporangia of 219
Spitzbergen, observations in 146
Sporeling of Sargassum 178
Spores, germination of moss 370
Sporobolus Wrightii, amphivasal bundles 10; cambium in 12
Sporogenesis, in Pallavicinia 67; in Polysiphonia 429
Sporophyte, mosses 158
Stenochlaena 356
Stephani, F., work of 149
Sterigmatocystis nigra 86
Stevens, F. L., 216, 369
Stewart, F. C., on spraying potatoes 364
Stewart, W., on resistant potatoes 369
Steyer, work of 85
Stickney, M. E., personal 227
Stigeoclonium, sexual reproduction 154
Stockard, C. R., on nucleus and secretions 306
Stomata in Sassafras 436
Stopes, M. C., on cycadean integument 226
Strand flora, Bay of Naples 327
Strange, work of 82
Strasburger, E., personal 80; on alternation of generations in Phaeophyceae 364
Streptopus 356
Strong, R. P., personal 228
Styrax Californica **fulvescens** 286
Sugar cane, diseases of 365
Suksdorf, W., on Washington plants 356
Swingle, W. T., work of 84
Symplocarpus, embryo of 369

T

Tansley, A. G., on vascular system of Matonia 218
Tectaria 356
Telangium Scottii 219
Teratology, Polysiphonia 432; Salix 368
Tetraspore formation in Polysiphonia 429
Thériot, I., on mosses 355
Thiselton-Dyer, W., personal 159
Thiessen, R., 154
Thomson, R. B., on Araucarineae 221
Thymelaea hirsuta 327
Thysanocarpus, 150, 356
Tillman on morphology of Cucumis sativus 456
Tobler on Polysiphonia and Ceramium 455
Tomato rot 156
Trachypodaceae 150
Trachypodopsis 150
Tracy, S. M., personal 160
Transeau, E. N., 17, 144, 222, 224; personal 371, 372
Transpiration, aluminum shells for experiments 212; measuring 158; of evergreens 362
Tréboux, O., on germination of moss spores 370
Trees, reserve food of 157
Trichostema **rubisepalum** 310
Trifolium altissimum 335; *altissimum* 335; *amabile* 334; amabile 342; amabile *longifolium* 342; arcuatum *Cusickii* 335; **atrorubens** 336; **bicephalum** 312; bifidum 334; bifidum *decipiens* 334; Breweri 334; **cognatum** 345; **Covillei** 337; *denudatum* 342; **Douglasii** 335; eriocephalum 335; *goniocarpum* 342; gracilentum 334, 342; Grantianum 340; **Greenei** 334; Harneyense 335; *Hemsleyi* 342; *Humboldtii* 342; *involucratum* 346, 347; latifolium 337; **longifolium** 342; longipes 336; **Lozani** 342; mexicanum 343; microcephalum 346; monanthum 339; *multicaule* 340; **Nelsoni** 344; new and noteworthy species 334; oreganum 336; *Ortegae* 347; Palmeri 344; parvum 340; *pauciflorum* 342; pedunculatum 336; *potosanum* 343; *reflexum* 346; repens 346; rhombeum 346; Rusbyi *atrorubens* 336; Schiedeanum 346; **shastense** 336; **simulans** 341; spinulosum 347; tenerum 339; tridentatum 346; **villiferum** 335; Willdenovii 346; Wormskjoldii 347

Trilocularia 356
Tripsacum *acutiflorum* 297; dactyloides 294, cambium in 12; dactyloides **hispidum** 295; fasciculatum 296; Floridanum 296; lanceolatum 296, 297; **latifolium** 294; Lemmoni 298; pilosum 297; synopsis of 294
Triticum sativum, amphivasal bundles 9; cambium in 12; nodes of 4
True, R. H., 299; on sporophyte of moss 158
Tubercle, root 216
Tuberization 77
Tumboa mirabilis 226
Twigs in winter 373

U

Ulearum 149
Underwood, L. M., 150, 356; personal 372
Unguicularia 356
Uredineae 150, 356; amphispores in 157; Japanese 149
Uromyces caryophyllinus 86
Uromycladium 150

V

Vaccinium corymbosum, ecological anatomy 19; mycorhiza in 32
Variation, experimental 359
Vascular system, of grasses 1; of Matonia 218
Veratrum 150
Verbascum sinuatum 327
Veronica **Copelandi** 288; Cusickii 290
Vicia 356
Villani, A., on nectaries in Cruciferae 368
Viola 356
Viticulture 153; Hungarian Institute 80
Vries, Hugo de, personal 159, 371, 372
Vuillemin, P., work of 150

W

Ward, L. F., personal 371
Ward, H. M., work of 82
Warming, E., on shore formations 78
Water, absorption by leaves 262; soil 305
Weiss, H. F., 434
Welwitschia 226
Wesenberg-Lund, C., on lakes 360
West, W. A., "Monograph of British Desmidiaceae" 452
Wheat, growth of root 139; growth of seedlings 54
Whetzel, H. H., on blight canker 366
White, E. A., "Fungi of Connecticut" 215
Wiegand, K. M. 373
Wiesner, J., personal 457; on light relations at high altitudes 156
Wilcox, E. M., 223, 226, 304, 364, 365, 366, 367
Wildeman, Émile de,, personal 307
Wilfarth, H., on migration of salts 224
Williams, K. L., on Dictyotaceae 79
Williams, R. S., personal 159
Winton, A. L., "Microscopy of vegetable foods" 300
Wittrock, V. B., "Catalogus illustratus iconothecae botanicae" 452
Wolfe, J. J., personal 227
Wolff, G., on apothecia of lichens 306
Woronin, work of 82
Wortmann, J.,work of 82, 85
Wulff, T., "Spitzbergen observations" 146

X

Xerophily, causes of 22

Y

Yamanouchi, Shigeo 425
Yeasts, conjugation of 157
York, H. H., personal 372

Z

Zahlbrückner, work of 149
Zauschneria 150
Zea Mays, amphivasal bundles 10, nodes of 5
Zeiller, R., on fossil gymnosperms 151
Zizania aquatica, amphivasal bundles 10; nodes of 4, 6
Zizyphus lycioides, absorption of water 279
Zoddaea 357
Zygadenus **exaltatus** 283
Zygnema, nuclear division 43